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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 09/711,587 | 11/13/2000 | Ammar Derraa | MI30-052 | 8262 |
| 21567 | 7590 | 07/13/2005 | EXAMINER | |
| WELLS ST. JOHN P.S. 601 W. FIRST AVENUE, SUITE 1300 SPOKANE, WA 99201 | | | ROSE, KIESHA L | |
| | | | ART UNIT | PAPER NUMBER |

2822

DATE MAILED: 07/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/711,587 | DERRAA, AMMAR | |
| | Examiner | Art Unit | |
| | Kiesha L. Rose | 2822 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 63-84 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the request for reconsideration filed 13 April 2005.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 63,64 and 77 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee (U.S. Patent 5,401,676).

Lee discloses an emission device (Fig. 3) that contains a plurality of silicon-comprising emitter tips (37), at least one of the emitter tips being substantially conical and comprising a tip portion supported by a frustum portion (base area under tip), the tip and frustum portions including sidewalls and a coating (40) over the tip portion, the coating not being along the frustum portion sidewalls but along the tip portion sidewall and comprises a first material having a lower work function than silicon, the tip portion terminates in a pointed apex.

Claims 78-84 are rejected under 35 U.S.C. 102(b) as being anticipated by Takemura (U.S. Patent 5,666,020).

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Takemura discloses an emission device (Figs. 5 and 9g) that contains a substrate (1) having a plurality of substantially conical emitter tips (20), each of the conical emitter tips terminating in a pointed apex and having a tip portion sidewall and a frustum portion sidewall and material (silicon dioxide) (4) over the substrate and between at least two of the emitter tips, the material having an upper surface and edges contacting the frustum portion sidewall without contacting the tip portion sidewall, wherein the entirety of the upper surface is exposed, the emitter tips comprise conductively doped silicon/ polysilicon.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 65-72 and 76 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Takemura (U.S. Patent 5,666,020).

Lee discloses all the limitations except for the emitter tip to comprise conductively doped polysilicon and a second material along the frustum portion. Whereas Takemura discloses an emitter structure (Figs. 3 and 9g) that contains an emitter (20a/b) that contains an emitter tip (20) that consist of conductively doped silicon such as polysilicon and a frustum portion (20b) with a second material (4) along the sidewall of the frustum. The emitter is doped with conductive silicon such as polysilicon to form a higher

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resistivity in the tip area of the emitter. (Column 7, lines 25-30) Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Jones by incorporating the emitter tip to comprise a conductively doped silicon such as polysilicon to increase the resistance of the emitter as taught by Takemura.

Claims 73-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Jones (U.S. Patent 5,619,097).

Lee discloses all the limitations except for the coating to comprise diamond, boron nitride or cesium. Whereas Jones discloses an emitter device (Fig. 107) that contains an emitter (13) with a tip and a coating (8) formed on the tip sidewall, where the coating comprises diamond, boron nitride or cesium. The coating comprises diamond, boron nitride or cesium since they are low work function material. (Column 9, line 5, column 22, lines 8-9, column 36, line 15) Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of Lee by incorporating the coating to comprise diamond, boron nitride or cesium since they are low work function materials as taught by Jones.

Response to Arguments

Applicant's arguments with respect to claims 63-84 have been considered but are moot in view of the new ground(s) of rejection.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiesha L. Rose whose telephone number is 571-272-1844. The examiner can normally be reached on M-F 8:30-6:00 off 2nd Mondays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amir Zarabian can be reached on 571-272-1852. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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AMIR ZARABIAN
SUPERVISOR
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ENTER 2800